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EXAMINER

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Paper No. 20

Application Number: 09/259,000
Filing Date: February 26, 1999
Appellant(s): RUTLEDGE, GARY L.

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Technology Center 2600

John A. Thomas
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed April 15, 2002.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims 1-4, 9, 18, 19, and 23-25 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

4,532,544	Federeau	7-1985
5,652,617	Barbour	7-1997
5,528,453	Berman et al.	6-1996

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 9, 18-19, and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Federau (US Patent no. 4,532,544).

Regarding claim 1, Federau discloses in fig. 1 the same video inspection system comprising a first image sensor operable to acquire an image in a first direction along a first axis (See Federau fig. 1, items 41 and 23, and col. 4, lines 2-13), a second image sensor operable to acquire an image in a second direction essentially perpendicular to the first direction (See Federau col. 4, lines 2-13), and a camera board and processor coupled to the first image sensor and second image sensor operable to receive an image from either the first image sensor or the second image sensor and prepare for display (See Federau col. 4, lines 14-25).

It is noted that although Federau teaches a plurality of sensor elements, it is silent about the same such as a first image sensor having a plurality of sensor elements and a second image sensor having a plurality elements.

However, in col. 4, lines 2-17 Federau discloses line sensor 23 made of multiple sensor elements 27 with sensor areas 25, wherein each sensor defines a scanning line 31 with respect to panoramic axis 1.

Therefore, it is considered obvious to one skilled in the art at the time of the invention to recognize the advantage of incorporating a first image sensor having a plurality of sensor elements and a second image sensor having a plurality of elements in the video inspection system for the purpose of providing as many sensors as possible to scan the interior of the water well or bore hole element by element, and the skilled artisan would be motivated to look to Federau's suggested scan lines of the sensor element 27 to provide the claimed first and second image sensors with the plurality of

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sensors in order to create panoramic images with large field showing every details on the monitor for examination (See Federau col. 5, lines 1-8).

As per claim 2, Federau 's area sensor not rotated or moved with respect to the optical system is equivalent to the claimed second image sensor operably acquiring a 360 degrees image without being rotated (See Federau col. 2, lines 51-57).

As per claims 3-4, 23-25 the limitations of these claims have been noted in the above rejection of claim 1. In addition, Federau further discloses the same pressure sealed camera mounted for use in a bore hole or water wall (See Federau col. 2, lines 2-5).

As per claims 9 and 18 Federau further discloses the same video inspection system wherein the first image sensor, the second image sensor, and the camera board and processor are mounted in a camera assembly (housing) operable to rotate about the first axis when the second image sensor is acquiring an image (See Federau col. 4, lines 46-50), and a camera board processor to process the image for display (See Federau fig. 1, processing circuit 17).

As per claim 19, the limitations of these claims have been noted in the above rejection of claim 1. In addition, Federau further discloses the rotation of the rotatable housing (See Federau col. 3, lines 1-5, and col. 4, lines 61-65), and the individual sensors 27 do

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acquire image in any position in between to provide a hemispherical image resulting from the sensors rotating around the optical image (See Federau col. 4, lines 8-13).

3. Claims 5-8, and 26-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Federau in view of Barbour (US Patent no. 5,652,617), and further in view of Berman et al. (US Patent no. 5,528,453).

It is noted that Federau is silent about the same system for video inspection comprising a spool for storing a coaxial cable as specified in claims 5-6, 26-27, 29 and 31.

Barbour discloses the same system for video inspection comprising a spool for storing the coaxial cable (See Barbour fig. 1, spool 4, D connectors, col. 8, lines 23-26, and col. 12, lines 18-20) wherein the D connectors can allow quick disconnect.

Therefore, it is considered obvious that one skilled in the art at the time of the invention having Federau and Barbour before him/her, would be motivated to include Barbour's spool in Federau's system for video inspection for the same purpose of raising and lowering the video tool which eliminates the need of an extra worker winding and unwinding the cable.

It is also noted that although both Federau and Barbour disclose a monitor to display the image captured by the camera (See Barbour fig. 1, display 12), they fail to particularly teach a carrying case having a removable cover as specified in claims 7 and 30.

Berman et al. discloses the same system for video inspection comprising a carrying case having a removable cover (See Berman et al. fig. 9, and col. 7, lines 36-45).

Therefore, it is considered obvious that one skilled in the art at the time of the invention having Federau, Barbour, and Berman et al. before him/her, would have had no difficulty to modify the system for video inspection of Federau and Barbour by incorporating a carrying case having a removable cover for the same purpose of facilitating easy and quick storage into closets or loading into the trunk of a car for transportation as taught by Berman et al. (See Berman et al. col. 7, lines 37-39).

As per claims 8, 28, and 32 the limitations of these claims have been noted in the above rejection of claims 5 and 29. In addition, Federau further discloses the same cable arm encoder operable to determine the distance traveled by the camera (See Federau fig. 1, encoder 45, and col. 4, lines 58-68).

As per claim 33, the limitations of this claim have been noted in the above rejection of claim 32. In addition, Federau's rotational drive generates the claimed high torque (See Federau rotational drive 44 of fig. 1, and col. 3, lines 4-5).

Response to Arguments

Regarding the above claims, the appellant argues that Federeau does not disclose "an image sensor" as claimed, and the "sensor elements" of appellant are cameras. The examiner respectfully disagrees because in col. 2, lines 51-62, Federeau particularly discloses that the area sensor scans the whole image rather than a single line. In addition, in col. 3, lines 3-15, Federeau indicates that the optical imaging system and the line sensor are both mounted in fixed positions in the camera head. In other word,

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the line sensors of Federeau are the appellant claimed "sensor elements" or "cameras" since according to the disclosure of the prior art the sensor and the camera constitute a single unit. Furthermore, the Federeau clearly states that the camera converts the electrical scan signals into video signals. In fact, Federeau provides a perfect substitution of equivalence with his camera arrangement along with the sensor elements.

The appellant further argues that Federeau does not disclose an image sensor but a line scanning sensor. The examiner respectfully disagrees, because Federeau clearly defines the camera in col. 3, lines 56-59. In addition, scanning an image line by line to generate a picture of that image is considered as a well known function performed by many cameras. In addition, it should be clear to the appellant that a line sensor would acquire the image in one direction as the scanning is being performed. And since the sensor elements of Federeau are more than one, it should be concluded that vertical and horizontal line scanning will give the claimed step of acquiring the image in the claimed directions. Furthermore, Federeau provides a camera head attached to the camera with a degree of freedom in the direction of the panoramic axis. In other words, Federeau provides a 360 degree view with 4 images offset by 90 degrees.

The appellant further argues that Federeau's sensing elements are embodied into one imaging system, and thus, Federeau does not contain the first and second image sensors as required. The examiner respectfully disagrees because Federeau provides

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more than one image sensors (See Federeau col. 4, lines 2-13). Further, in col. 4, line 9-10, Federeau teaches that each single sensor area defines a scan line on the object and further in col. 3, lines 60-63, Federeau discloses that the camera has an operating circuit which converts the electrical scan signals into video signals, which may be used as TV image.

The appellant further argues that Federeau reference contains no teaching or suggestion to combine the "sensor elements" into an array such as in a typical CCD camera imager and place this array in a television camera. The examiner respectfully disagrees since not only such specific aspect of the invention is not claimed in the independent claims as the applicant would tend to argue, but also Federeau acknowledges that such combination is also well known in the art. And finally, the appellant admits that such combination is considered a "typical CCD camera imager" placed in a television camera. Therefore, no inventive step is seen in providing such an arrangement.

Regarding the above claims, the appellant argues that neither Federeau nor Barbour and Berman contain the limitation "a single camera" operable to capture an image in a first and second directions. The examiner respectfully disagrees because Federeau

teaches controlling the line sensor individually in order to avoid error caused by different illumination (See Federeau col. 5, lines 1-11). This is analogous to the claimed single camera since the line sensor contain a camera. Further, because in col. 4, lines 52- Nilsson et al., Federeau teaches that the camera head may be mounted on the camera body with an axial degree of freedom, capturing an image in a second direction ninety degrees from the first direction is anticipated by Federeau.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Gims S Philippe
Examiner
Art Unit 2613 *GP*

GSP
June 20, 2002

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